

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Claims 2 and 3 were missing in the original application, so Examiner renumbered Claims 4-25, 2-23. Numbers as follows are the new numbers.

Listing of Claims:

Claims 1 – 11 (cancelled) [i.e. original claims 1 and 4-13 (cancelled)]

Claim 12 (currently amended) A process for stimulating nerves for conducting nerve research and investigations, said ~~system~~ process comprising:

- A) generating pulses of infrared light with a diode laser,
- B) controlling said laser to produce laser pulses of desired duration and power to produce a desired pulse power profile,
- C) directing at least a portion ~~or all~~ of said pulses ~~to~~ of infrared light to a target comprising a single nerve or a portion of said single nerve so as to produce single mode stimulation of the nerve.

Claim 13 (previously amended) The process as in claim 12 wherein said infrared light (is infrared light at wavelengths of about 980 nm.

Claim 14 (previously amended) The process as in claim 12 wherein said nerve fibers are C fiber nociceptors.

Claim 15 (previously amended) The process as in claim 12 wherein said nerve fibers are A-delta fiber nociceptors.

Claim 16 (cancelled)

Claim 17 (previously amended) The process as in claim 12 wherein said controller comprises a personal computer.

Claim 18 (previously amended) The process as in claim 12 and further comprising a temperature sensor for sensing temperature of said target.

Claim 19 (previously amended) The process as in claim 18 wherein said temperature sensor is configured to provide a temperature signal to said controller and said controller is programmed to utilize said temperature to provide feedback control of said laser in

order to provide a desired temperature profile at said target.

Claim 20 (previously amended) The process as in claim 12 wherein said controller is programmed to provide laser pulsed according to a predetermined pulse energy profile to produce pain but no tissue injury.

Claim 21 (previously amended) The process of claim 12 and further comprising the steps of increasing of power for pulse duration 50-150 ms from power level of 0.5 W with step less than 0.2 W with a diameter of irradiation area 0.5-2 mm lead to produce clear monomodal (single) pin prick pain and selective activation of A delta fibers.

Claim 22 (previously amended) The process of claim 12 and further comprising the steps of increasing of pulse duration from 0.3 to 20 sec with power level around 1.5 W with a diameter of irradiation area 5 mm-15 mm lead to inducing of clear monomodal hot pain and selective activation of C nociceptors.

Claim 23 (previously amended) The process of claim 12 and further comprising the steps of: increasing of power for pulse duration of 400-500 ms with a diameter of irradiated area 3-5 mm may induce clear single hot pain or clear single warmth sensation and selective activation of C fibers.

Claim 24 (previously presented) The process as in Claim 15 wherein the single type of stimulation is prick pin stimulation.

Claim 25 (previously presented) The process as in Claim 14 wherein the single type of stimulation is warmth stimulation.

Claim 26 (previously presented) The process as in Claim 14 wherein the single type of stimulation is single hot stimulation.

Claim 27 (previously presented) The process as in Claim 12 wherein the single type of nerve is a single nerve cell.

Claim 28 (previously presented) The process as in Claim 12 wherein the said infrared light is directed to said target using an optical fiber with a core diameter chosen from a group of diameters consisting of:

20 +/- 15 microns,
60 +/- 15 microns and
100 +/- 15 microns.

Claim 29 (previously presented) The process as in Claim 12 wherein said infrared light is infrared light having a wavelength of about 1450 nm.

Claim 30 (previously presented) The process as in Claim 12 wherein said infrared light is infrared light having a wavelength of about 1850 nm.

Claim 31 (previously presented) The process as in Claim 12 wherein said infrared light is infrared light having a wavelength of about 810 nm.

Claim 32 (previously presented) The process as in Claim 15 wherein the single type of stimulation is prick pin stimulation.

Claim 33 (previously presented) The process as in Claim 15 wherein the single type of stimulation is prick pin stimulation.

Claim 34 (previously presented) The process as in Claim 15 wherein the single type of stimulation is prick pin stimulation.

Amendments to the Drawings:

The attached sheet of drawings includes a change to FIG. ~~35~~ 1C,

The controller is now designated everywhere as 26

The delivery fiber is now correctly specified in the specification as 29.